

## EXECUTIVE SUMMARY

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### Purpose and Need:

The purpose of the CVPIA Expanded Land Retirement Demonstration Project is to study the impacts of land retirement upon groundwater levels, groundwater and surface water quality, soil chemistry and biota. The project will also evaluate habitat rehabilitation techniques to determine the most effective and economical means to rehabilitate native upland habitat to aid in the recovery of threatened and endangered species in the San Joaquin Valley. Additionally, the project will evaluate alternatives for the use of water acquired through implementation of the demonstration project. This project is needed to provide site-specific scientific data to guide the implementation of the land retirement program and develop tools to predict potential benefits and impacts of retiring lands from irrigated agriculture in the Central Valley of California.

### Background:

Public Law 102-575 (CVPIA), Title 34, Section 3408(h) authorizes Interior to purchase land from willing sellers which would, if permanently retired from irrigation, reduce drainage, enhance fish and wildlife resources, and make water available for CVPIA purposes. The Land Retirement Program (LRP) may assist with the recovery of threatened and endangered species in the San Joaquin Valley and will be a positive move towards resolving water quality issues of the San Joaquin River.

The problems seen in the San Joaquin Valley are typical of those resulting from irrigated agriculture in areas with shallow groundwater tables and little or no drainage outlet. The salt content of irrigation water increases as water evaporates, passes over saline soils, or is consumed by plants. Salts both in the water and in the soil create problems for agriculture by inhibiting plant growth. In extreme cases, high salt concentrations can render the land useless for agriculture. Where drainage is adequate, salts can be flushed from the root zones if there is sufficient rainfall or if additional irrigation water is applied for this purpose. However, this seldom eliminates the salinity problem. If the salts are washed off the land with additional water applications, the return drainage flows will have higher salt concentrations. This may adversely affect plants, fish and wildlife dependent on surface drainage water as well as downstream users. In areas lacking good drainage, repeated irrigation may raise the water table. When the water table reaches the root zone of plants, capillary action often carries water close to the soil surface, where it evaporates and leaves a salt residue. In time, this process greatly reduces the productivity of the land. Salinity also increases management and operating costs and accelerates corrosion of equipment.

### Land Retirement Program:

Section 3408(h) provides for the LRP as one means to reduce drainage-related problems in the Central Valley. The primary area of interest is along the center and western sides of the San Joaquin Valley. The principal objectives of the LRP are to decrease these drainage problems and to enhance wildlife habitats and acquire water for other CVPIA purposes, wherever possible. Retirement of large contiguous blocks of land from willing sellers best meets these objectives.

CVPIA authorizes the purchase of land, water and other property interests from **willing sellers**. The land must receive CVP water to be eligible for the program. Land Retirement is a VOLUNTARY program. **There will be no condemnation of land by federal authorities** as part of this program.

The Land Retirement Program (LRP) will be accomplished cooperatively by the Department of Interior (Bureau of Reclamation (USBR), U.S. Fish and Wildlife Service (FWS), and the

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Bureau of Land Management (BLM)) in cooperation with the California Department of Water Resources (DWR). The Secretary of the Department of the Interior appointed Reclamation as the lead agency for this program, and the Land Retirement Team resides in Reclamation's South-Central California Area Office in Fresno, California.

Retiring land eliminates the application of irrigation water, thereby reducing the amount of subsurface drainage water produced from a particular piece of property. The amount of salts and other solids passing into the drainage water would be reduced because with less water moving through the soil profile, less leaching would occur. Reductions in the amount of agricultural drainage, and resultant improvements to subsurface water quality will benefit fish and wildlife and associated habitats in the San Joaquin Valley and ultimately the Sacramento-San Francisco Bay delta. Additionally, retired agricultural lands, once rehabilitated, may provide native upland habitat for declining wildlife populations and may contribute to recovery of sensitive, threatened or endangered species. Retired lands will be managed for upland habitat by Interior as public lands or may be managed in partnership with other public or private entities.

Interior solicited applications from willing sellers within the entire CVP service area. The lands were selected based on general selection criteria of poorly drained soils with high concentrations of selenium in the shallow groundwater table (See Interim Guidelines for specific criteria). A total of 61 applications have been received covering approximately 43,000 acres and additional applications are being received on a continuous basis. The majority of these applicants are in the Westlands Water District and the Atwell Island Water District and provide the opportunity to acquire large contiguous blocks of land.

### Issues:

A variety of issues have been identified through scoping and ongoing discussions with water districts, growers, environmental organizations, state and federal agency representatives. These issues are summarized as follows:

- Physical impacts of land retirement:
  - soil chemistry
  - groundwater level
  - groundwater quality
  - surface water quality
- Potential to rehabilitate lands to upland habitat
- Risk of wildlife exposure to contaminants
- Disposition of water
- Socio-economic impacts
- Air Quality
- Post-retirement Land Use (Adaptive Management)

The discovery of intersex mice at Kesterson Reservoir during the 1998 monitoring will not be an issue addressed in this analysis. Because Kesterson is a fairly closed system and no longer receives drainwater, no obvious new contaminant sources could be identified as the causative agent. Selenium has not shown this effect in mammals in laboratory experiments. The Demonstration Project is a totally different situation from Kesterson, as these lands did not impound drainwater on them. The project will collect mice to assist in the determination of the cause of this phenomenon in the San Joaquin Valley.

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### **Proposed Action:**

The proposed action is to retire various parcels from irrigated agriculture in two geographic areas with differing geologic and hydrologic characteristics and instituting a 5-year demonstration project consisting of statistical and empirical studies designed to determine the physical effects of retirement upon groundwater levels and quality, soil chemistry and impacts to biota. A number of habitat rehabilitation techniques such as direct seeding, transplanting, restoring topographic features to laser-leveled fields (micro-topography), and land imprinting will be tested to determine which methods work best under various site conditions. Four land treatments will be studied: revegetation; reestablishment of microtopography; revegetation and microtopography; and control or no treatment. The project will monitor groundwater quality and shallow water table levels, soil chemistry and the potential risk of wildlife exposure to contaminants such as selenium, in the project area.

A total of approximately 7,000 acres will be retired in the Westlands Water District (WWD) in western Fresno County. These lands will be managed by the Bureau of Reclamation. A second study area of 8,000 acres will be retired in the Tulare Lake Basin, in eastern Kings and western Tulare Counties in the Atwell Island Water District and the Alpaugh Irrigation District near Delano, California. These lands will be managed by the Bureau of Land Management in cooperation with the U.S. Fish and Wildlife Service's Kern and Pixley National Wildlife Refuges.

The areas identified for acquisition were recommended for land retirement in the Final Report of the San Joaquin Valley Drainage Program, 1990. Interior determined that retiring lands from these areas would serve the project goal of generating credible scientific data to determine the potential effects of large scale land retirement. Specifically, these areas were selected because of the diversity in land types (drainage characteristics) and suitability of the land for rehabilitation to upland wildlife habitat. A preponderance of willing sellers in a concentrated area creates the potential to acquire large contiguous blocks of land which are suited to creating linkages for wildlife movements. No applications were received from the Grasslands Subarea which drains directly to the San Joaquin River.

### **Features Common to Action Alternatives:**

- Lands will be acquired at fair-market value and must be free from hazardous waste as determined by federal land acquisition standards. Fee simple transactions are preferred, however Interior will look at other options like conservation easements.
- Lands will be selected based on the depth to groundwater, selenium concentrations in soil and groundwater, soil drainage class, drainage outlet, parcel size, location and potential to rehabilitate to upland habitat and the amount of CVP water available.
- Lands having drainage and groundwater quality problems will be targeted for acquisition.
- Four land treatment options will be studied: revegetation; reestablishment of micro-topographic features; revegetation and microtopography; and control (no treatment)
- Revegetation will be accomplished by a variety of techniques: direct seeding, transplanting, use of mycorrhizal inoculum and cover crops. Native seed will be collected from the vicinity of the project area, however some seed may be purchased from certified native seed suppliers. Efforts will be made to ensure compatibility of species and cleanliness of seed mixes to minimize importation of weeds or pests.

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- Buffer strips will be created between Demonstration project lands and surrounding farmlands to reduce effects of weeds, pests and drift of any herbicides or pesticides that may be used by farmers or by demo project staff. Integrated pest management (IPM) practices will be used to deter weed and pest problems, however the LRP may utilize physical means such as disking, hand weeding or burning, or chemical means such as herbicides and pesticides to control weeds and pests.

### **Description of Alternatives:**

#### **No Action Alternative**

This alternative will continue the existing land use practices of irrigated agriculture. No new lands or their associated water allocations will be acquired. No new scientific studies of the effects of land retirement upon the physical and biological environment will be initiated and no comparison studies will be implemented outside of the WWD. The Demonstration Project initiated in 1998 on 1891 acres in the WWD will continue.

#### **Alternative 1: Land Purchased With Water Allocation**

Under Alternative 1, Interior would purchase 15,000 acres and the associated water allocations at fair-market value. Acquired water will be used for CVPIA purposes and may be used on-site for habitat rehabilitation efforts, or transferred out of the district for CVPIA purposes, primarily to enhance fish and wildlife resources.

#### **Alternative 2: Land Purchased Without Water Allocation**

Under Alternative 2, Interior would purchase 15,000 acres without the associated water allocations. In the WWD, Interior would partner with the District to purchase land, the district would purchase the water allocation, up to \$1150 per acre. The water associated with retired lands would be transferred to WWD's supplemental supply and used on non-drainage problem lands. (See Appendix 3 for agreement).

### **Affected Environment:**

The project area lies in the San Joaquin Valley of California which is characterized by hot, dry summers and cool, moist winters. Total precipitation averages 4-8 inches per year, with most falling between October and April. This region is an important agricultural area both in the domestic and international markets. It is predominantly rural and irrigated agriculture is the primary land use. Crops include pastures, orchards, vineyards, vegetables, cotton and grain.

The soils of the project area are generally fine-textured, compacted clays of low permeability and poor drainage. The lands proposed for acquisition are underlain by perched water tables, which are highly saline and contain high concentrations of selenium, a naturally-occurring trace element which has been shown to be toxic to many species of wildlife.

The two study areas are rural in character and have lower than average levels of income compared to all of California. The population consists largely of migrant Hispanic farm workers, approximately 41 percent in Alpaugh study area and up to 94 percent in the WWD study area.

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**Environmental Impacts:**

Interior has determined that this 5-year demonstration project will have no significant environmental impacts. These impacts are summarized in the following matrix:

**Matrix Assumptions:**

- Under the No-action Alternative irrigated agricultural practices will continue as long as it is economical to farm project lands.
- Under the No-action Alternative, the evaporation pond at the Alpaugh site will re-open to manage shallow water-table conditions at the site.
- Both Alternatives 1 & 2 (Action Alternatives) will use a variety of techniques to rehabilitate project lands to upland habitat. It is not likely that any suitable habitat for threatened and endangered species will be created within the project's 5-year life.
- Any water removed from the district will be replaced by groundwater pumping, and any water retained by the district will replace existing ground water pumping.
- Field observations and ground water flow models indicate that the water table beneath the retired demonstration lands will decline over time, regardless of the disposition of the surface water allocation from the retired lands.
- Physical and biological parameters will be monitored for change detection and the results used to adapt management strategies to maximize the effectiveness of habitat rehabilitation techniques and to minimize risk of wildlife exposure to contaminants.

P: denotes project level effects

C: denotes cumulative effects in the region

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**ISSUES AND AFFECTED RESOURCES**

	ALTER-NATIVE	LAND USE	GW LEVELS	GW QUALITY (Se/EC)	SW QUALITY	SOIL CHEMISTRY	HABITAT ESTABL.	WILDLIFE RISK	DISP. OF WATER	AIR QUALITY	JOBS	TAXES
A L T E R N A T I V E S	<b>NO ACTION</b>	No land acquired, no water made available for CVPIA purposes. Irrig. Ag continues until uneconomic to farm.	GW continues to rise, drainage-impacted area grows	GWQ declines, increased salinity & Se	Evap Pond is reopened, SW declines	Increased salinity, decreased Se in soil (leaches to GW)	No upland hab. establ. Land degrades, <potential to restore hab. Continued loss of hab	Irrig. continues, as land abandoned due to rising GW, evap pond reopens, salts/Se may be wicked to surface exposing wildlif. to contaminant	no water made avail. for CVPIA purposes	as lands abandoned, >PM-10 from wind, >chance of wildfire	Down ward trend continues	Lands devalue as decline in production; Lands abandoned, default on taxes
	<b>ALT. 1 W/water</b>	P: Retire up to 15,000 acres, create upland habitat C: WRP acq. 9200 acres in easements in Alpaugh area, combined total conversion from irrig. ag up to 24,000 acres. (< 0.8% total irrig. acres in SJV)	P: GW declines C: No impact	P: GW degradation ceases C: No significant impact	P: SWQ improves as evap pond is closed C: No signif. Impact	P: Salt loading from irrig. water ceases, Se remains stable C: No signif. Impacts	P: Active mgt. of land for habitat C: provide corridor links.	P: GW declines, dry upland hab, evap pond closed, no exposure pathway C: no impact	P: water to envir. purposes C: <surf. ag water supply	P: <PM-10, <soil disturb., Provide veg. cover C: no impact	P: few jobs lost, jobs provided from restoration work C: no impact	P: tax loss offsets thru PILT; C: no signif. Impact
	<b>ALT. 2 W/o water</b>	same as Alt. 1	P: GW declines C: No measureable impact	P: same as Alt. 1	P: same as Alt. 1	Same as Alt. 1	Same as Alt. 1	P: same as Alt. 1	P: water stays in distr. for ag C: no impact	same as Alt. 1	Same as Alt. 1	same as Alt. 1

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